

rather than confined to one or more classes. *There is no labour on which the operative can be employed, which may not benefit by a knowledge of the principles of design.* Here will he make acquaintance with the beauty of form, and having constantly before his eyes specimens of art by the great masters, his mind will gradually become coloured with their feeling. He will learn to distinguish the true from the false, and his gradually and naturally refining taste will stamp itself upon the labour of his hands. With workmen so educated, what power can arrest the onward progress of British manufactures? In alluding to the diffusion of education amongst the working classes, it was recently well expressed by one of our distinguished statesmen, that 'Education tends to elevate the whole man physically, intellectually, and morally, and his elevation tells again on the commercial prosperity of the country in ten thousand different ways.' The manufactures for which Sheffield has been so long and justly celebrated have a natural connection with the arts. And I feel justified in asserting that such occupations as those of the silversmith, chaser, die-sinker, modeller, steel-etcher, stove and fender makers, carver, and many others, if aided by the knowledge and skill of the artist, would rise to a hitherto unattained pitch of excellence, and bring to the manufacturer, at once, increase of fame, and increase of wealth."

Speaking of the casts and examples to be placed before the students, he remarked:—

"Let us copy them, not as mere copyists, but as men striving to work in the spirit which produced them; and let us no longer condescend to be the servile imitators of modern French and German art."

To the students themselves, urging them to give assiduous and persevering application, he said:—

"Let them ever bear in mind, that each hour spent here in careful study, will do the work, and produce the wages, of many in their future career. He who, to the character of an expert workman, shall add the reputation of a good draughtsman, will always find himself sought after and employed at a high rate of remuneration. Earnest and well directed labour is seldom unrewarded; and among those who are now thus labouring here, there are many who may hereafter sit amongst the eminent manufacturers of their country, dating back their eminence to the knowledge acquired here. To all who study, then, I say, courage and perseverance."

And so saying to master and pupils, whether in Sheffield or elsewhere, take courage and persevere.

ST. GEORGE'S CHURCH, LEICESTER. EFFECTS OF LIGHTNING.

SIR,—The church at Leicester recently damaged by lightning, as mentioned in *THE BUILDER*, is of the perpendicular or late pointed period, of indifferent design much ornamented; erected I should imagine fifteen or twenty years ago. The spire was surmounted by a vane, having a fan and cross above of metal (brass I believe), united to an iron rod of 1½ inch diameter, about 12 feet long, which was let into the stone work. This you will see, formed an admirable conductor, best calculated to be the destruction of the spire; carrying the fluid into the masonry, there to find an exit as it willed. The lightning, after spending its fury on the spire, passed away through a downright pipe fixed in the inner angle of the north-east buttress of the tower; from thence it appears to have travelled along the roof to the three pipes fixed against the south side of the body of the church, and the farthest downright pipe from the tower on the north side: all the pipes shew the action of great heat, being much discoloured, and pieces (three in number, I believe), about the size of the human hand, have been found, which were forced out of the pipes. The pipe from the tower has been acted upon most, being considerably more shattered and discoloured than the rest; the masonry round it also, bears strong evidences of fire. By the falling of the masonry, the roof of the north entrance porch has been shattered, and the roof of the first bay of the north aisle completely destroyed; the roof of the nave adjoining has been also considerably damaged. The bell has fallen in the centre of the tower, carrying away the

belfry floor and the landing of the gallery staircases; it has been cracked by the fall, but bears no traces of the electric fluid. The tower appears to have escaped, having received no further damage than some of the glass being forced out of the window. The spire will have to be taken down and rebuilt: the probable cost of the restoration is said to be from 2,500*l.* to 3,000*l.* A short time since the tower of St. Margaret's, in the same town, was struck by lightning, one of the pinnacles being thrown down. It was restored without any effort being made to obviate a similar disaster, and only of late, I believe, has any provision been made. Looking at the number of buildings injured of late years by lightning, the infatuation and gross carelessness of those entrusted with the charge of public buildings, is only equalled by the miners of this country, in their disregard of the qualities of the safety lamp.

CAVETTO.

IRON TUNNEL OVER THE MENAI STRAITS.

SIR,—You mentioned last week that contracts had been entered into for the ironwork to the Menai tubular bridge, and connected with this subject, I wish to draw your attention to the circumstances, that in the elaborate reports that have been published by Messrs. Stephenson, Fairbairn, and Hodgkinson, and the able communications that have appeared in the columns of your contemporaries, I have not observed that any calculations have been made as to the probable effect likely to be produced by a heavy gale of wind, either from the south-west or north-east, on the proposed structure.

We have had ample proof of its destructive character upon suspension bridges similarly exposed, presenting, comparatively speaking, a small surface to the action of that powerful and at times irresistible element, whereas this tubular bridge is to be 450 feet long, 30 feet high, and 15 feet wide, offering 13,500 square feet of rigid surface (exclusive of the width underneath the roadway) to its resistance.

With every confidence in the genius, capacity, and talent of the eminent man who designed the tubular bridge, and of the practical knowledge and mathematical attainments of those gentlemen who have aided in conducting the experiments, I may be allowed to observe, that as these have been necessarily on a very limited scale, and in situations so dissimilar, where it would be almost impossible to obtain correct practical data, particularly on the subject alluded to, and as this is a work combining boldness with novelty, and in which a national interest is felt, further and more satisfactory information would be exceedingly interesting to the profession, and I have no doubt to the public at large.

The public, on whose fiat depends the success of this undertaking in a commercial point of view, are generally too prone to condemn new projects or inventions unless they have ocular or other demonstration of their safety, utility, or practicability, as, for instance, suspension bridges on their first introduction, and railways; even now many are too timid to travel by railways, and some of us with hearts moulded of Nature's hardest stuff, would not have ventured to travel by express trains, if the speed they have acquired had been attained on the first introduction of railways.—I am, Sir, &c.,
Merthyr Tydfil.

B. B.

SEWERS.—From a return just issued by order of the House of Commons, it appears that the total amount of sums collected by the Commissioners of Sewers for the city and liberty of Westminster and part of the county of Middlesex, between the 17th of May, 1839, and the 31st of December, 1845, has been 145,540*l.* In 1841, the amount received was 32,981*l.*; in 1842, it was 28,472*l.*; in 1843, it was 29,784*l.*; in 1844, 36,089*l.*; and in 1845, 24,196*l.* During the period the expenditure has been 138,976*l.*, leaving 15,388*l.* as balance in hands of treasurer on the 31st of December last.

FURNACE-BAR.—Mr. Dredge, the inventor of a suspension-bridge, has lately introduced and registered a new form of furnace-bar. The principal advantages claimed for this invention are great increase of strength, and a freer access of air to the fire than usual.

FOREIGN ARCHITECTURAL AND COL- LATERAL INTELLIGENCE.

THIS annual meeting of German architects, engineers, &c., will be held at Gotha, on the 3rd to 7th September next. A numerous attendance of English brother-labourers is expected. [The distance from London to Gotha is—61.]

"Systematic" work on Grecian Antiquities.—Professor Hermann, of Goettingen, is carrying a splendid work, under the above title, through the press. The first volume contains (what we call) State's antiquities, roads, bridges, canals, &c. The second, the culte or religious antiquities of Hellas.

The "new" Pinakothek of Munich, &c.—Close to the old Pinakothek, on an extensive piece of ground, the foundations for the above building are just being dug out. This structure, which will be ope analogous to the old Pinakothek, although differing in style, will be destined for specimens of modern German art. The architect is Professor Voit. Its outer wall will be ornamented with a long row of pictures, for which Kaubach has made the designs—being "allegories of the history of modern German art."

Professor Henry de Hess is just painting a great fresco for the refectory of the Benedictine convent belonging to the Basilica, while one of Hess's pupils, Mr. Caspar, has nearly completed another fresco—"the stoning of St. Stephen," to be placed in the right side aisle of the Basilica. Objects of great admiration are the coloured cartoons of Mr. Anton Fischer, made for the stained glass windows of the Cathedral of Cologne, presented by the King of Bavaria. Especially in the death of Jesus, the artist has exhibited a clearness of perception, freedom and largeness of design, and depth of feeling in expression and motion, which at once assign to him a honourable place amongst European artists. The royal glass painting establishment is busily engaged in executing this and another cartoon of Fischer—"the adoration of the Kings." The third of the huge windows for Cologne is "the effusion of Holy Spirit," on which Mr. F. is to lay hand next.

Electro-Phonetic Telegraph.—Professor Hume, of the Academy of Charlestown, has brought this matter to a final issue, by the construction of a model—although something similar had been previously discovered both in St. Petersburg and in Cincinnati: in the former city it had been laid before the Imperial Academy of Sciences. The Russian telegraph can produce ten tones by ten different wires; that of Charlestown has hitherto merely two wires, which produce two tones, but is capable of producing all the letters of the alphabet by an adequate number of wires. But this seems superfluous, provided that a sufficient number of tones be extant, to make the speech of the telegraph intelligible. The difference between this sort of electric communication and that of others (for instance, that of Mr. Morset) is, that tones supply mere signs and figures. The machinery, however, is very simple, and the sound can be clearly heard in any, even large room. Dr. Hume is on the point of publishing the details of the Phonetic telegraph, and putting it into practice.

Great Congress of Freemasons in Strassburg.—The programme of this large gathering of the craft (just concluded) exhibits some interesting features in the several questions proposed for discussion by the *Orient* of Strassburg. Amongst these is "What improvements of the working classes can Freemasonry put forth, not previously attempted by the external (not-masonic) world?" This is a very hard question indeed. Another portion of the programme states, that nothing relating to party politics or party religion can be broached in congress.

The Turkish Gazette—contains a law issued by H. M. the Emperor, by which it is permitted to Mahomedans, to erect stone houses, *chans*, magazines, and shops, either in Constantinople or the provinces. We noticed it on another occasion,† that as well in the capital as most other places, all private buildings, nay even the imperial palaces, were built of wood; and for the building in stone, hitherto an especial permission of Government was required. [These are improving times indeed.]

J. L.

* Page 200.

† Page 184, ante.

‡ Page 517, ante.